I welcome you all in this session myself.

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title of the unit.

Functional aspects of ecosystem module name,

ecological efficiencies.

In this module you will be learning

about ecological efficiency,

quantifying ecological

efficiency exploitation.

Efficiency assimilation.

Efficiency and.

Net production efficiency by

the completion of this module,

you will be able to describe

ecological efficiency.

Explain how to quantify ecological

efficiency and define exploitation

efficiency as simulation efficiency and.

Net production efficiency.

Ecological efficiency.

Energy flows from the primary

producers through the various trophic

levels of consumers and decomposers.

Organisms use food energy that they

assimilate to fulfill metabolic requirements.

Performance of work,

growth and reproduction of the light

energy as simulated by photosynthesis.

Plants use between 15 to 70%

for their own maintenance.

Herbivores and carnivores are more

active than plants and use more

assimilated energy on maintenance.

Some a simulated energy is

lost through non predatory.

That egestion and respiration.

As a result,

the productivity of each

trophic level is only 5 to 20%,

then of the level below it.

So when energy passes from one

level of production to the next,

there is always energy loss.

Here in this image we can see

the energy flow and it shows that

when energy is passing from one

level of production to the next,

there is energy loss.

The energy flow through the community

depends on the efficiency with which

organisms consume their food resources

and convert them into biomass.

Ecological efficiency describes

the efficiency with which energy

is transferred from one trophic

level to the next.

So ecological efficiency is the

percentage of energy in the biomass

produced by one trophic level that is

incorporated into the biomass produced

by the next higher trophic level.

Lindeman in 1942 stated that the amount
of energy reaching each trophic level
depends on the net primary production
at the base of the food chain.
The efficiencies with which animals
convert food energy into their own
biomass energy through reproduction and
growth at each higher trophic level
quantifying ecological efficiency.
Ecological efficiency is a combination
of several related efficiencies,
like the exploitation efficiency,
assimilation efficiency and
net production efficiency.
Exploitation efficiency.
This exploitation efficiency is
the percentage expressing the
proportion of pre production that is
ingested by the next trophic level.
So exploitation efficiency is equal to
ingestion upon pre production into 100.

Here production is the biomass produced

per unit of time in an ecosystem.

The exploitation efficiency of

the prey would be the proportion

of the total pre biomass that is

eaten or exploited by predators.

This exploitation efficiency vary

between different ecosystems.

Light into these two forest.

Exploitation efficiency is 1 to 2%.

This low percentage is because.

Of the woody trees that are largely

unconsumed by the hobby booze in grassland,

the exploitation efficiency will be

around 30 to 60% as it consists of

non Rudy plants in aquatic ecosystem.

It will range from 60 to 90% as most

plant and algal biomass can be consumed

by abuse assimilation efficiency,

the percentage expressing.

The proportion of ingested energy

that is assimilated into the

bloodstream is called assimilation.

Efficiency assimilation efficiency

is equal to assimilation.

Upon ingestion into 100,

assimilation efficiency depends on

the quality of food eaten and the

physiological efficiency of the consumer.

Carnivores have assimilation

efficiency of around 80%.

As they consume soft tissue

which is easily assimilated,

whereas hobby wars,

the assimilation efficiency will range

from 5 to 20% as the plant leaves

have many indigestible cell walls.

Net production efficiency,

which is also denoted as NP.

The efficiency with which as simulated

energy is incorporated into reproduction,

growth and storage is called

in net production efficiency.

NP is equal to consumer production

upon assimilation into 100,

NP is measured as energy stored in

biomass and assimilation is the

total amount of energy absorbed by

the bloodstream of an Organism.

NP is influenced by organisms metabolism.

Plants in temperate zones have NP,

which ranges from 75 to 80%

and plants in tropics.

They have NP which ranges

from 40 to 60% vertebrates.

They have lower NP than the invertebrates

as they use more energy to sustain their

metabolism than new biomass production.

Ecological efficiency is the

product of exploitation,

efficiency, assimilation,

efficiency and the net production efficiency.

So ecological efficiency is equal to

consumer production upon pre production.

Into 100 ecological efficiencies.

It vary in different food chains.

For example, marine food chain.

The ecological efficiency is 30%.

Desert food chain has

ecological efficiency of 2%.

The low ecological efficiency

can be for two reasons.

Many organisms cannot digest all the prey.

Much of the energy that is

assimilated by Organism is

used in maintenance

references.

Thank you.